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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,233	08/30/2001	Walter L. Moden	3161.3US (97-0116.2)	2436

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EXAMINER

LAMB, BRENDA A

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 11/20/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/944,233

Applicant(s)

Moden et al

Examiner

LAMB

Group Art Unit

1734

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 7/10/02.
- ☒ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-53 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-23, 25-27 and 29-53 is/are rejected.
- ☒ Claim(s) 24 and 28 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

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Claims 6 and 33 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The originally filed specification fails to teach how the height detection system taken alone levels the exposed surface of the adhesive or viscous material with the specification at page 12 first paragraph setting forth the height detection mechanism as the combination of a transmitter 140 and light receiver 142 and this combination of elements is incapable of leveling the exposed surface.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-23, 25-27 and 29-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al.

Sakai et al teaches the design of an apparatus for applying a viscous material to an electronic substrate such as semiconductor component Sakai et al teaches the apparatus is comprised of a reservoir having of a pool chamber 4 defined by an upward facing opening and a pipe (not numbered) extending from the pool chamber which leads to a viscous inflow chamber. Sakai et al teaches at least one first mechanism, elements 5 and 5a, which acts as a pump which obviously can be operated so as to pump the desired amount/height of viscous material. Sakai et al shows a coating stencil 3 arranged on top of the reservoir and shows the levelness of the exposed surface extruded through the stencil and thereby reads on the claimed at least one second mechanism set forth in claim 27 or the at least one mechanism set forth in claim 1. Sakai et al as depicted in Figure 3 also shows that the adhesive is provided to a precise location on the substrate located above the reservoir. The upper opening of the Sakai et al pool chamber in combination with the adhesive material obviously provides an upper exposed meniscus for the adhesive material to extrude through the stencil plate arranged above the upper opening of the Sakai et al pool chamber. With respect to claims 7-20 and 34-48, Sakai et al fails to teach the size of the apertures, amount/number of apertures and viscosity of the viscous/adhesive material set forth in the above cited claims. However, it would have been an obvious design choice to optimize the size in the Sakai et al stencil plate such that they are within the scope of the claims since it has been held that a change in size is generally recognized as being within the level of ordinary skill in the art (see *In Re Rose*, 105 USPQ 237 (CCPA 1955)). Further, it would have been obvious to optimize the number of apertures of the Sakai et al stencil plate such that they are within the scope of the claims obviously dependent on the pattern one desires to apply to the substrate. Finally, it would have been obvious that the Sakai et al apparatus is structured and

arranged to apply a variety of viscous/adhesive materials to the substrate including those within the scope of the claims absent a clear showing of unexpected results. With respect to claim 25 and 52, Sakai et al fails to teach the stencil is attached to the reservoir but obvious to do so to increase structural stability of the apparatus. With respect to claims 21 and 49, Sakai et al teaches in an alternate embodiment applying a vacuum to the apparatus including the bottom of the stencil to extrude the viscous/adhesive material through apertures of the stencil. Therefore, it would have been obvious to modify the Sakai et al apparatus by providing a vacuum means such as shown in Figure 7 such that a vacuum is applied to the reservoir with stencil including the back side of the stencil for the obvious reason of greater control of the extrusion of the adhesive viscous material. With respect to claims 22 and 50, Sakai et al teaches a means for bringing the substrate into contact with the exposed surface of the adhesive/viscous material. With respect to claims 23 and 51, although Sakai et al fails to teach the apparatus includes a circulation system but obvious to an artisan to do so since it is conventional for known advantages of circulation/mixing material in a reservoir. With respect to claims 3-5 and 30-32, it is deemed that Sakai et al stencil plate manipulates/user surface tension in the manner set forth in the claims since it provides the same result-substantially level height of adhesive which is applied to the substrate.

Applicant's arguments filed 7/10/02 have been fully considered but they are not persuasive.

Applicant's argument that Sakai et al fails to provide a mechanism for leveling an exposed surface of the electrode paste or maintaining a height thereof is found to be non-persuasive. Sakai et al teaches the coating system has a coating stencil which is within scope of

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the applicant disclosed first mechanism as set forth in claim 1 or second mechanism as set forth in claim 27 and further teaches at column 5 lines 23-29 that extruding the adhesive to a constant level from the stencil plate which would be maintained before coating the substrate due to the pressure by the pressure means 5 and 5a.

Applicant's argument that Sakai et al fails to teach or suggest the apparatus applies adhesive to one or more underside surface of the semi-conductor whereas Sakai et al applies adhesive to both bottom surface and adjacent side surface of the substrate is found to be non-persuasive. Sakai et al at column 6 lines 6-7 that his apparatus only side or end of the substrate obviously depend on the size of the substrate relative to the reservoir.

Applicant's argument that the specification is enabled to teach that the height detection system taken alone levels the exposed surface of the adhesive is found to be non-persuasive. Page 13 paragraph 46 recites that the height detection mechanism in combination with pump (132) or a value level which is not part of the height detection system the exposed surface of the adhesive.

Since applicant has not traversed the obviousness of providing the Sakai et al apparatus with a recirculation system, it is considered to be an admission of prior art that it is conventional in the art to provide a circulation/mixing material in a reservoir which is part of a coating apparatus (see In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943)).

Claim 28 ^{and 24 are} objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

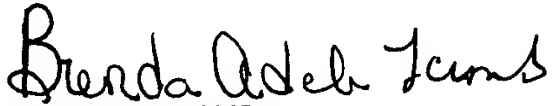
Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to Brenda Lamb at telephone number 703 308-2056.

Examiner Lamb/ng

November 13, 2002


BRENDA A. LAMB
PRIMARY EXAMINER
GROUP 1880